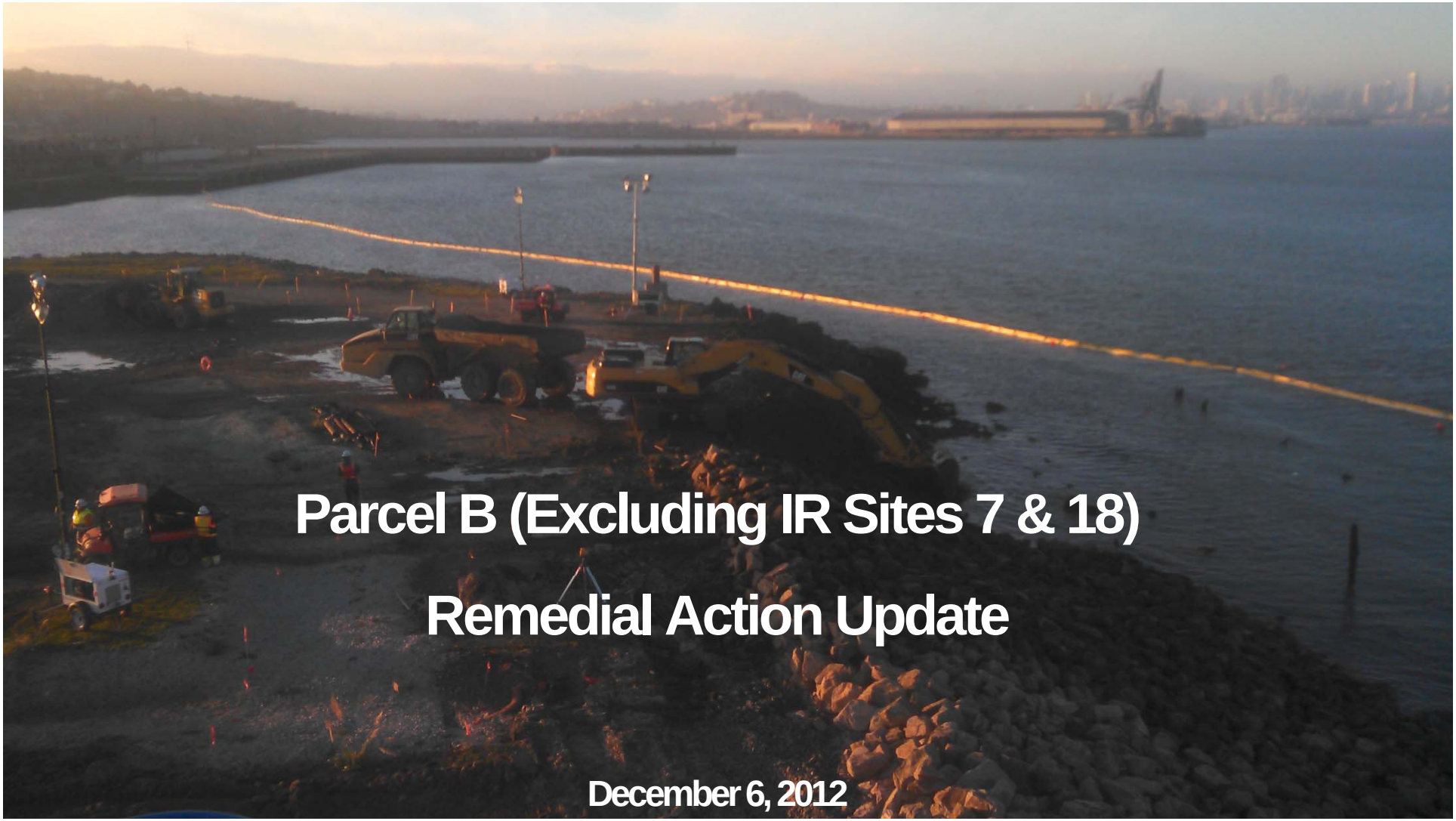
Hunters Point Naval Shipyard
BCT Meeting



Parcel B (Excluding IR Sites 7 & 18)

Remedial Action Update

December 6, 2012

Presentation Overview

- **RA Overview**
- **RA Implementation Update**
  - **RA Activities Completed to Date**
  - **Upcoming RA Activities**
  - **Issues Encountered During Construction**
- **RA Schedule Update**
- **RA Photos**

RA Overview

- Prevent exposure to soil found below the surface
  - Nearly 2,000 feet of shoreline along San Francisco Bay armored with large rocks
  - Vegetated soil cover over slopes along the western edge of Parcel B
  - Asphalt pavement over nearly 40 acres of currently paved areas
  - Restoration of existing building foundations
- Address future soil vapor intrusion risks at IR-10
  - Installation and operation of an active soil vapor extraction system
  - Injection of *polylactate* in groundwater to promote cleanup by bacteria in groundwater

RA Overview (Map)

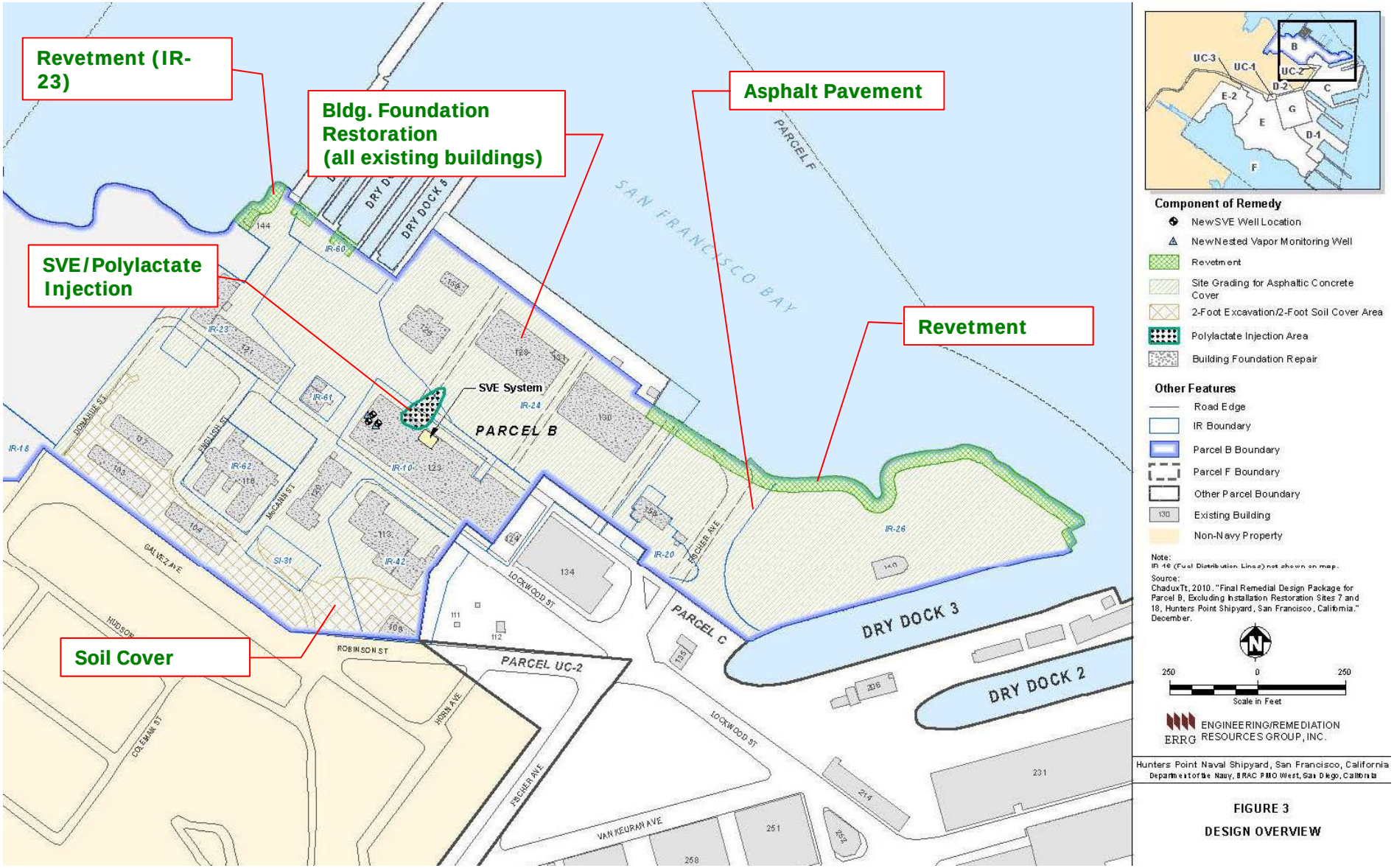
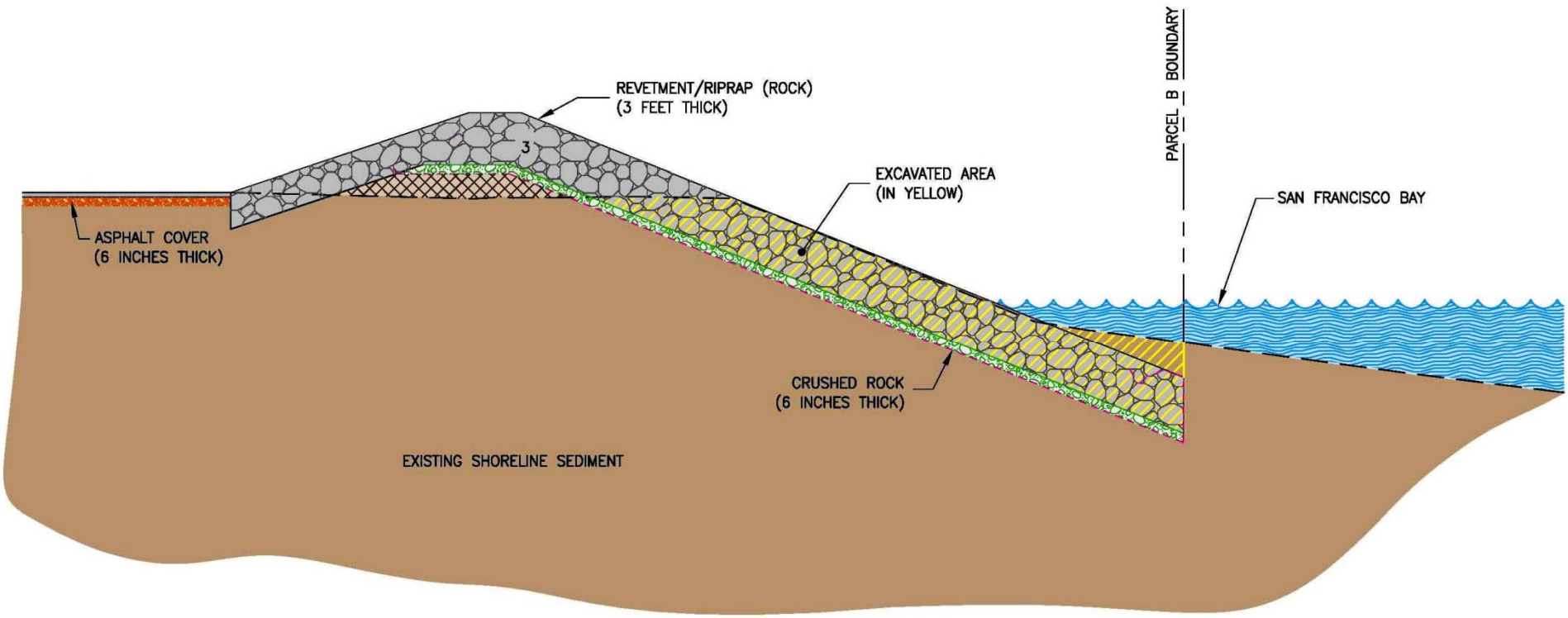


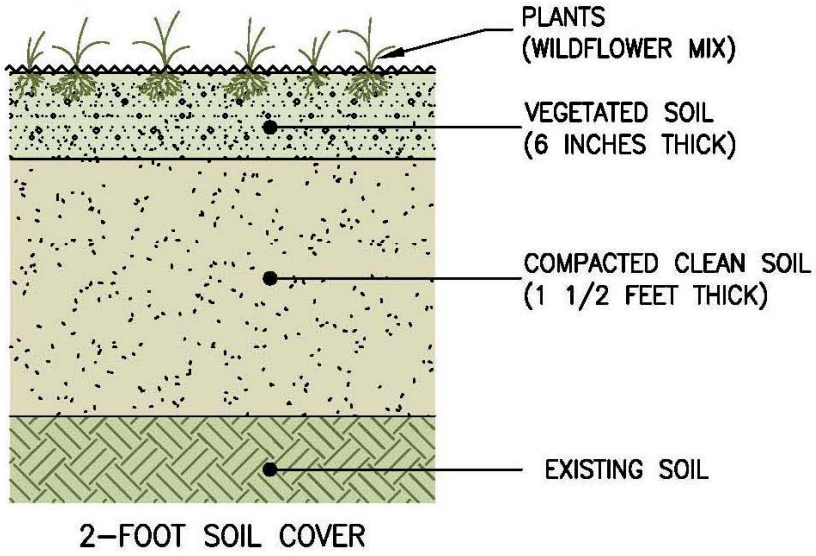
FIGURE 3

DESIGN OVERVIEW

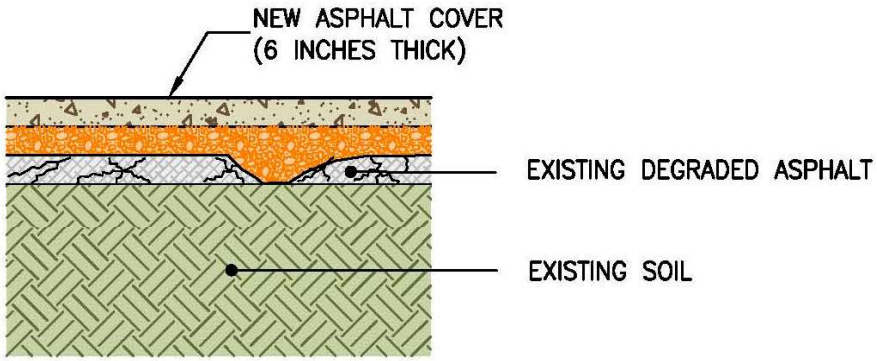
RA Overview - Shoreline Revetment Design



RA Overview - Soil and Asphalt Cover Design



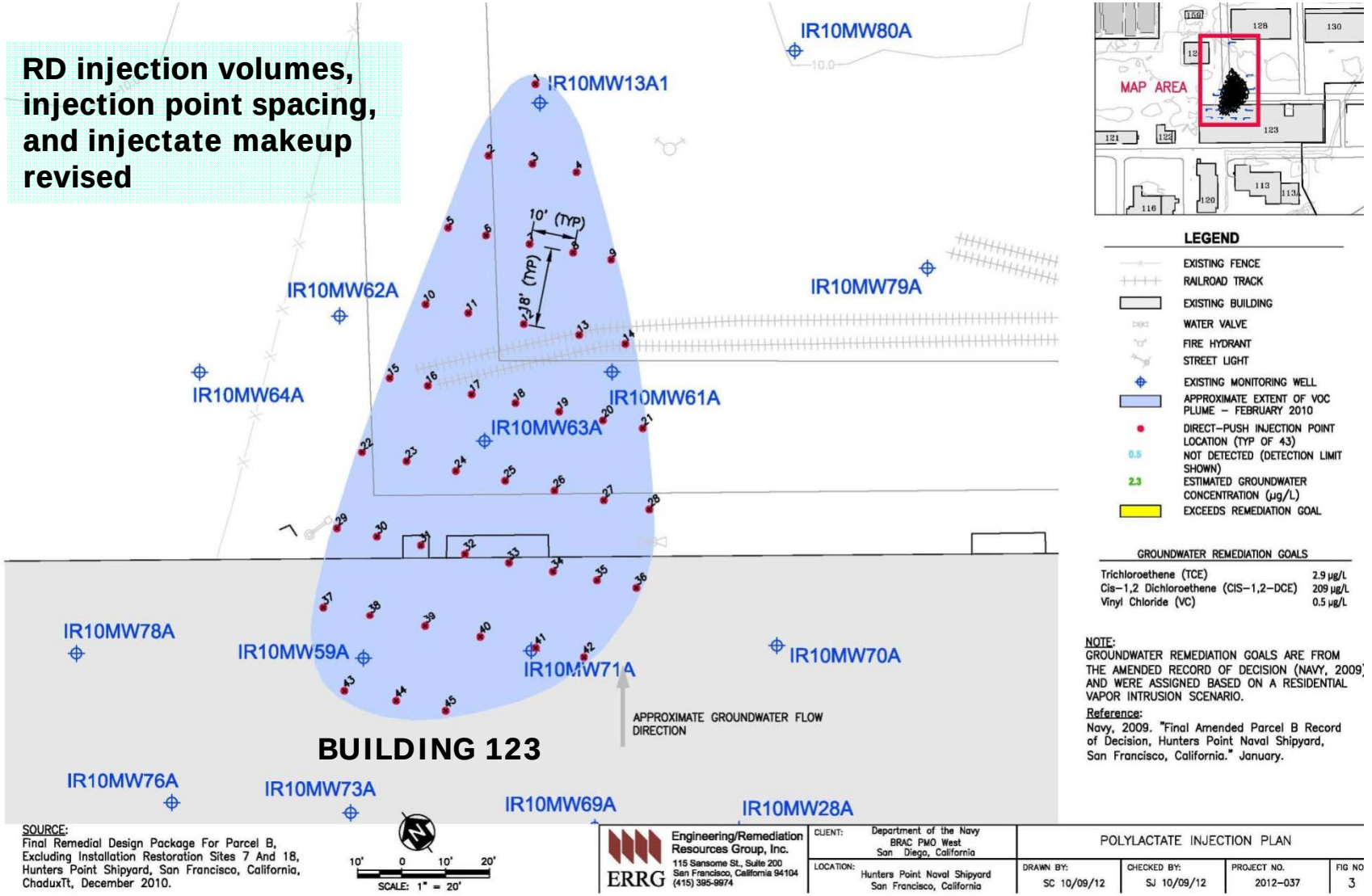
2–FOOT SOIL COVER



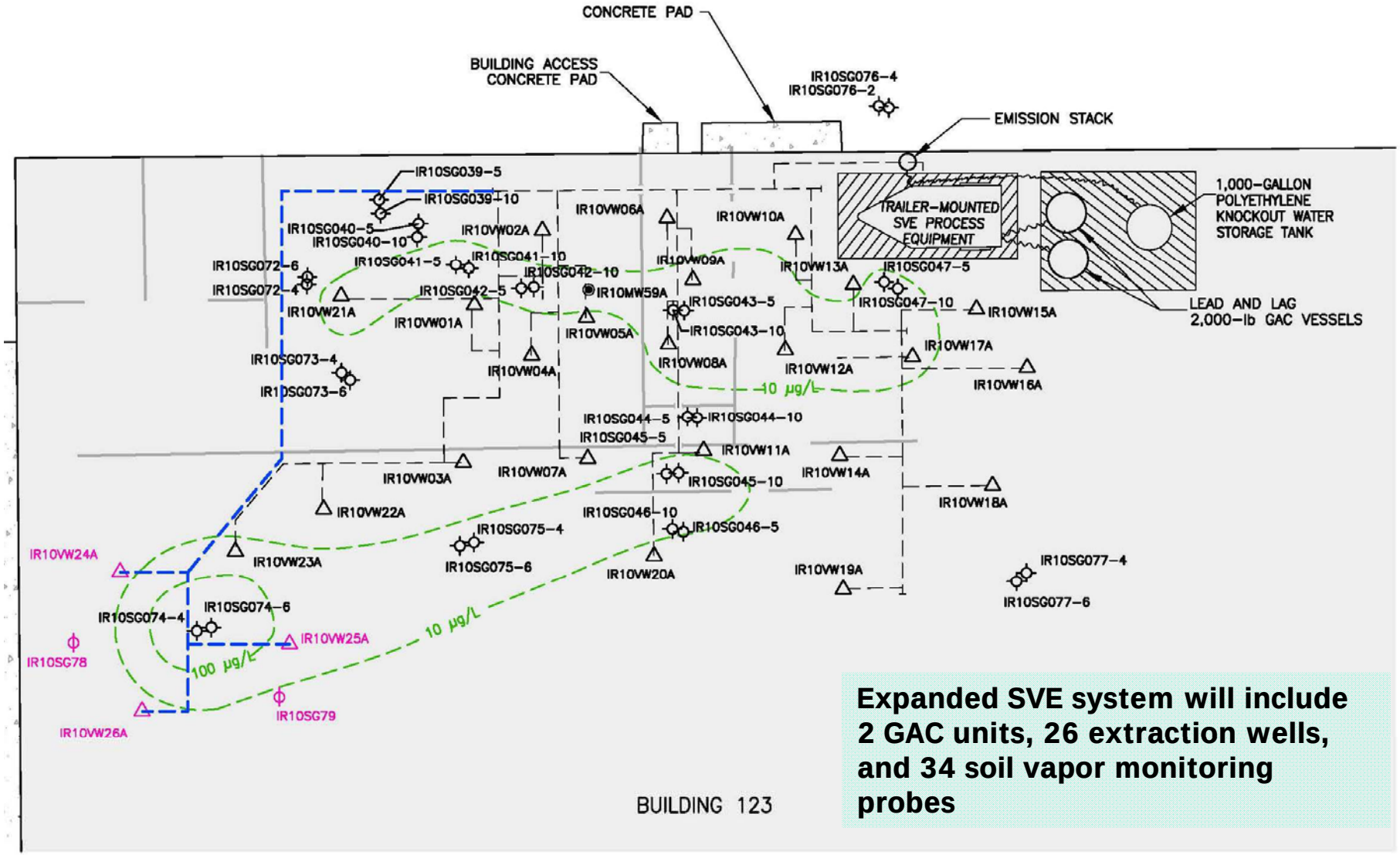
6–INCH ASPHALT
PAVEMENT COVER

RA Overview – Polylactate Injection Plan

RD injection volumes, injection point spacing, and injectate makeup revised



RA Overview – SVE System Layout



Expanded SVE system will include 2 GAC units, 26 extraction wells, and 34 soil vapor monitoring probes

RA Overview - SVE System Photos

Current Condition of SVE System

System will be expanded and tested as part of a comprehensive commissioning process

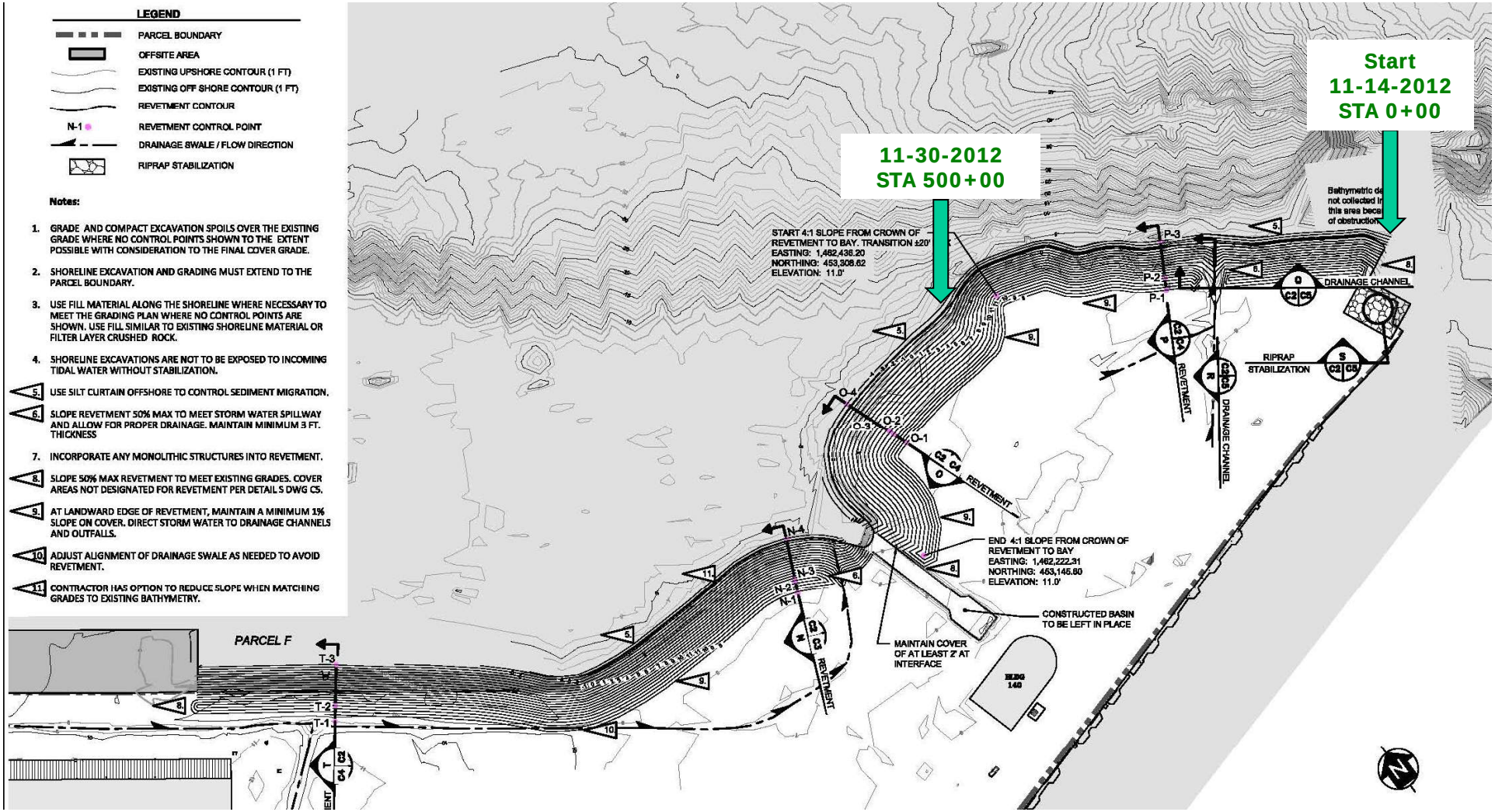
RA Implementation Update
RA Activities Completed to Date - Mobilization

- Mobilized to site in early November 2012
- Established site office and set up support zones
- Installed and calibrated air monitoring stations, dust monitors, and weather station
- Installed perimeter fence and safety signage
- Installed site-wide stormwater BMPs
- Established stabilized site entrance with truck tire wash/recycle station
- Established stockpile management area
- Established barge offloading area
- Installed turbidity curtain in the SF Bay along shoreline areas where shoreline revetment is to be constructed
- Performed existing conditions survey and photo-documented condition of site
- Performed underground and overhead utility survey
- Installed power service to Building 123 to support SVE system operation
- Mobilized water trucks, hydrant stand, and street sweeper for dust management
- Held QC/safety construction kickoff meeting with ROICC

RA Implementation Update - RA Activities Completed to Date – Revetment Construction

- Began shoreline revetment construction in mid-November to take advantage of favorable low tides
- Low tides to date have occurred in evening, (construction performed after dark: 3PM – 8PM start times); 9 days on, 6 days off
- Imported 4,700 tons of rip rap by barge to date (32% of total)
- Imported 2,600 tons of filter rock to date (79% of total)
- Imported 126,000 sq. feet of filter fabric by truck (100% of total)
- Surveyor established control points, stationing, and grade stakes to guide construction
- Shoreline debris removed, segregated by waste type, and stockpiled for off-site disposal/recycling
- Some natural rocks set aside for incorporation into revetment structure; used in deep toe sections beneath imported rock
- Constructed ~500 linear feet of revetment to date (27% of total) (see next slide)

RA Implementation Update - RA Activities Completed to Date – Revetment Construction



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RA Implementation Update
Upcoming RA Activities – Polylactate Injection

- IR-10 Polylactate injection plan presented in the RD was revised based on pre-injection data collected by the BGMP contractor in July/August
- Injection volumes, injectate makeup, and injection point spacing have been revised
- Primary reason for change is addition of an HRC primer; typically recommended where high levels of competing electron acceptors, primarily sulfate at IR-10, exist and should be reduced to pave the way for a more successful, cost-effective HRC application
- A technical memorandum including an updated RD calculation brief will be submitted to the regulatory agencies for review in early December
- Injections are planned for early January 2013

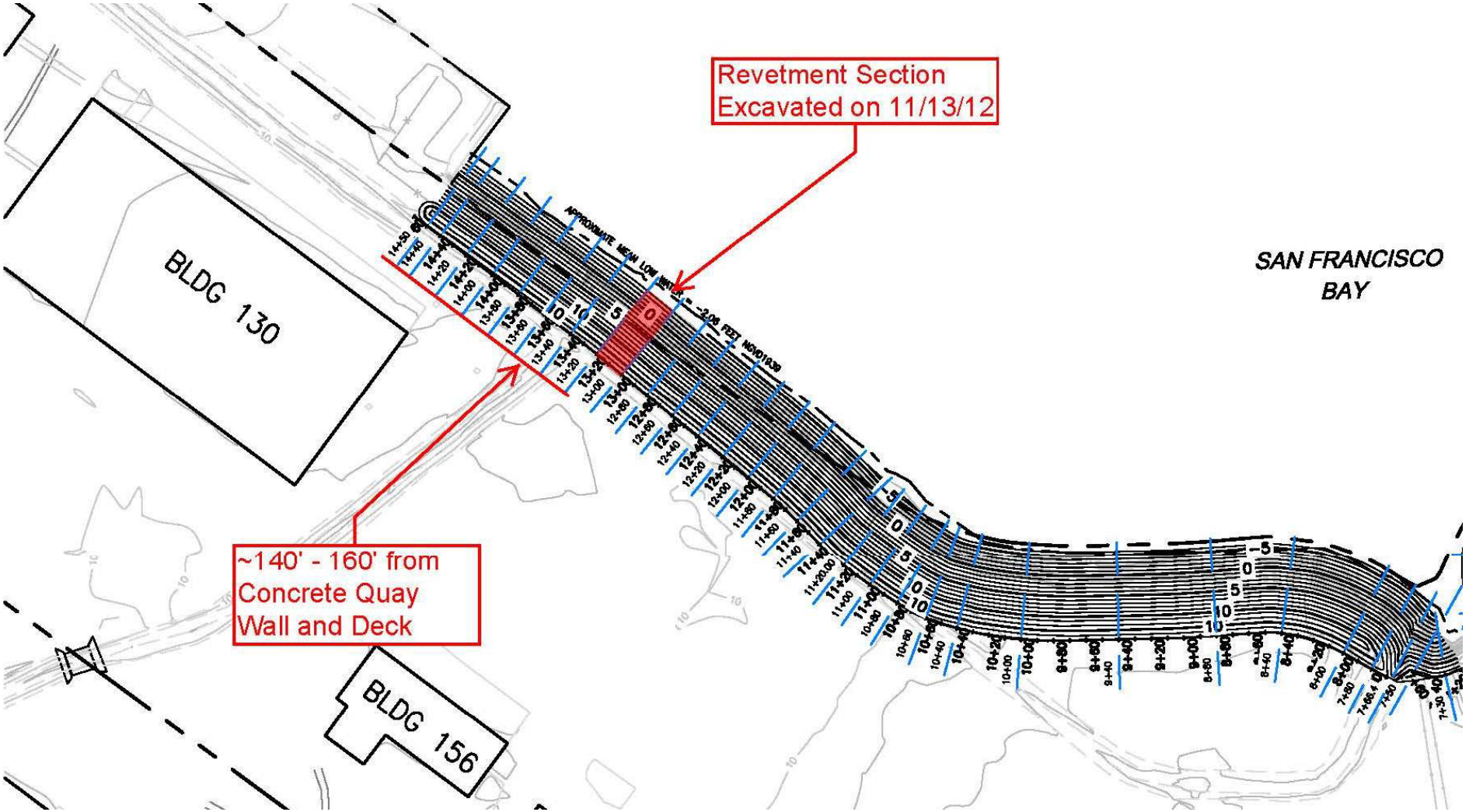
RA Implementation Update
Upcoming RA Activities – SVE

- IR-10 SVE operation information and SVE System Operation Plan (SSOP) were developed and presented to BAAQMD
- BAAQMD determined that due to low-level contaminant concentrations in soil gas and historical emissions, the system is exempted from abatement device and emissions testing requirements
- The Navy still plans to install two (2,000 lb.) GAC vessels in series to treat emissions and monitor influent, mid-system, and emissions in accordance with the RD
- The SSOP, which describes the operational sampling, will be provided to the regulatory agencies in early December
- SVE system expansion, upgrades, and commissioning are being performed in December 2012
- SVE system operation will commence in early to mid January 2013, following final regulatory agency acceptance of the SAP and successful commissioning

RA Implementation Update
Issues Encountered During Construction

- Petroleum Contamination in Shoreline Sediment
  - On 11/13/2012, the Navy began construction of the revetment structure at IR-26
  - The first section to be constructed was between STA 1300+00 and STA 1320+00 (approx. 130 feet SE of the TPH AOC)
  - A vitrified petroleum lens was identified approximately 3 feet below ground surface during excavation activities (~7 feet MSL)
  - The lens was visible over a 10-foot width across the face of the excavation
  - The Navy proceeded with excavation, as this was above the water line and easy to remove

Revetment Excavation Between STA 1300+00 and STA 1320+00



Revetment Excavation Between STA 1300+00 and STA 1320+00

Vitrified Petroleum Lens

RA Implementation Update
Issues Encountered During Construction

- Petroleum Contamination in Shoreline Sediment *(cont.)*
  - While excavating the revetment slope at lower elevations, petroleum hydrocarbon material (product and contaminated soil) with a strong diesel odor was discovered
  - The contamination appeared to be present between -1.4 feet MSL and 2.5 feet MSL
  - Contaminated soil and free product was visible in the excavated soil and along the entire 20-foot wide excavation
  - An oily sheen was observed on the water trapped within the excavation and petroleum product leaching from the sidewall of the excavation at the water level elevation in the excavation

Petroleum-Impacted Sediment Discovered

Petroleum-impacted sediment encountered across entire 20-foot wide excavation at approximately 7.5 feet below original grade (2.5 feet msl); visible sheen on water surface contained within excavation

RA Implementation Update
Issues Encountered During Construction

- Petroleum Contamination in Shoreline Sediment *(cont.)*
  - Upon discovery, the contractor notified the RPM and implemented the following corrective actions to contain the release:
    - A hydrocarbon boom was deployed at the toe of the excavation to prevent the leached product (sheen) from migrating out into the SF Bay
    - Contaminated sediment loosened during the excavation process was removed and relocated to a bermed, plastic-lined stockpile area, and the pile was covered with plastic
    - The excavation sidewall was lined with geotextile material and filter rock was installed over the entire footprint of the excavation to stabilize the geotextile
    - 8 samples of the contaminated stockpiled soil were collected and sent to an off-site laboratory for rush TPH analysis
    - Hydrocarbon-absorbent boom was deployed the next day along the entire length of the turbidity curtain as a precautionary measure

Hydrocarbon-Absorbent Boom Deployed at Toe of Excavation to Prevent Oil Migration to SF Bay

Impermeable Geotextile and Filter Rock Placed Over Excavation to Prevent Sediment Migration

Stabilized Excavation with Hydrocarbon-Absorbent Boom Deployed

Stabilized Excavation the Next Morning

Hydrocarbon-Absorbent Boom Deployed Along Entire Length of Turbidity Curtain

RA Implementation Update
Issues Encountered During Construction

- Petroleum Contamination in Shoreline Sediment *(cont.)*
  - Sample results:
    - Gasoline Range Organics: Trace detections in all samples (<7.6 mg/Kg)
    - Diesel Range Organics: 130 – 1,200 mg/Kg
    - Motor Oil Range Organics: 110 – 1,000 mg/Kg
  - HPNS Backfill Acceptance Criteria for TPH:
    - Gasoline Range Organics: 315 mg/Kg
    - Diesel Range Organics: 1,500 mg/Kg
    - Motor Oil Range Organics: 1,850 mg/Kg
    - Total TPH: 3,500 mg/Kg

  Source: Screening criteria for shallow soil, residential reuse, from the New Preliminary Screening Criteria and Petroleum Program Strategy (Shaw Environmental, Inc., 2007).

RA Schedule Update

Construction Schedule

- Mobilization and Site Preparation: Nov 5, 2012 – Nov 12, 2012
- Revetment Construction: Nov 12, 2012 – Feb 21, 2013
- Polylactate Injection: Jan 6, 2012 – Jan 16, 2012
- SVE System Setup and Operation: Nov 27, 2012 – TBD
- Soil Cover Installation: Feb 22, 2013 – Jun 4, 2013
- Asphalt Cover Installation: Jun 5, 2013 – Sep 10, 2013
- Fence and Settlement Monument Installation: Sep 11, 2013 – Sep 17, 2013
- Site Cleanup, Final Survey, and Demobilization: Sep 11, 2013 – Sep 17, 2013

Post-Construction Documents

- Draft RACR and RA Fact Sheet: Dec 18, 2013
- Final RACR and RA Fact Sheet: Mar 18, 2014

RA Photos
Temporary Construction Fence Installed

RA Photos
High Volume Air Monitoring Stations Set Up

RA Photos
Constructing Truck Tire Wash with Recycle System

RA Photos
Resurfaced Haul Road with AB to Reduce Trackout

RA Photos
Dust Control With Water Trucks

RA Photos
Tire Wash and Street Sweeper in Operation

RA Photos
Silt Curtain Deployment

RA Photos
Filter Rock Delivered by Truck

RA Photos
Rip Rap Delivery by Barge

RA Photos
Shoreline Debris

RA Photos
Shoreline Debris Removal

RA Photos
Shoreline Debris Segregated and Stockpiled

RA Photos
Segregating Natural Rocks from Debris for Reuse

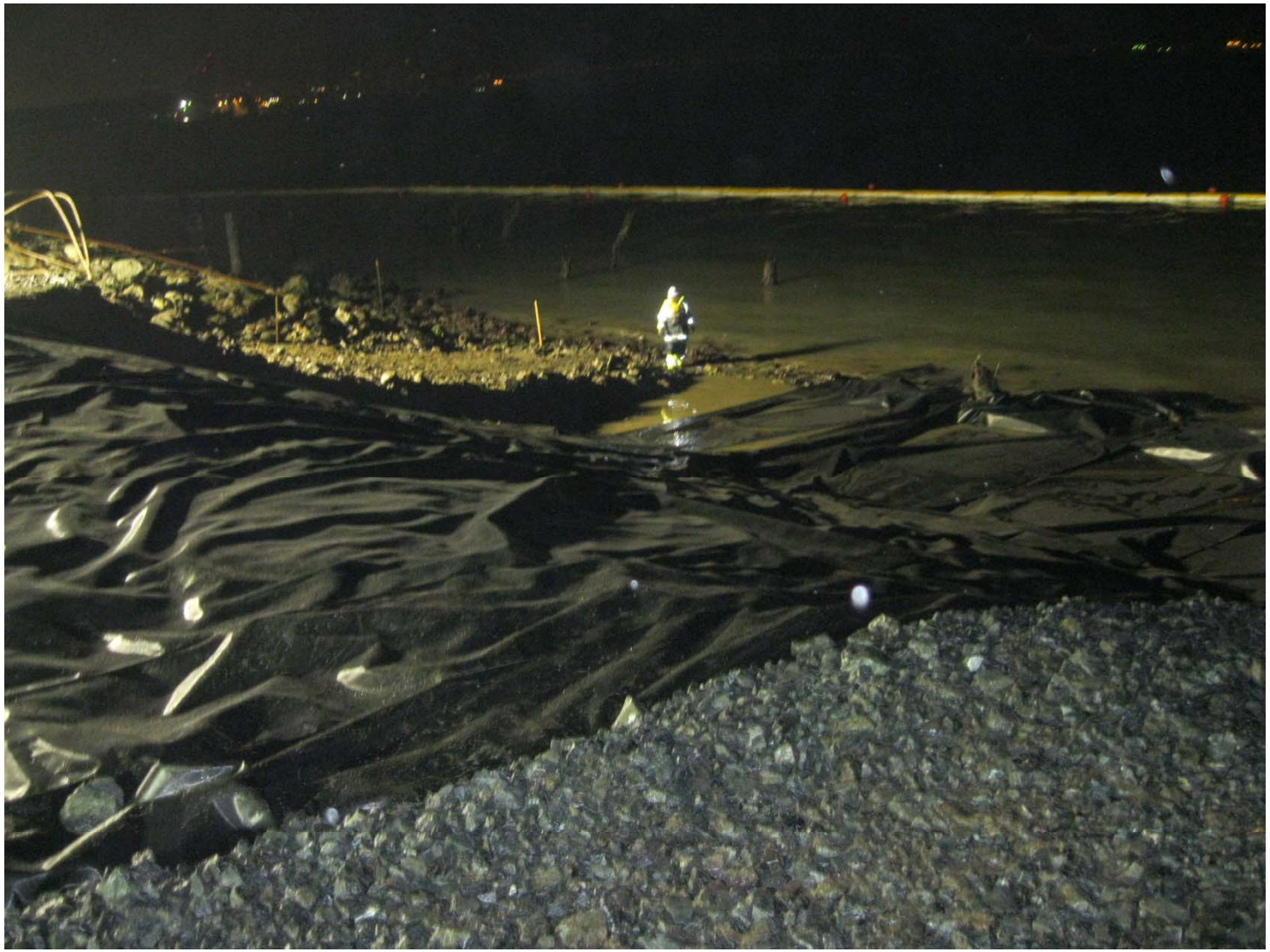
RA Photos
Surveying the Shoreline

RA Photos
Survey Stakes for Revetment Grade Checking

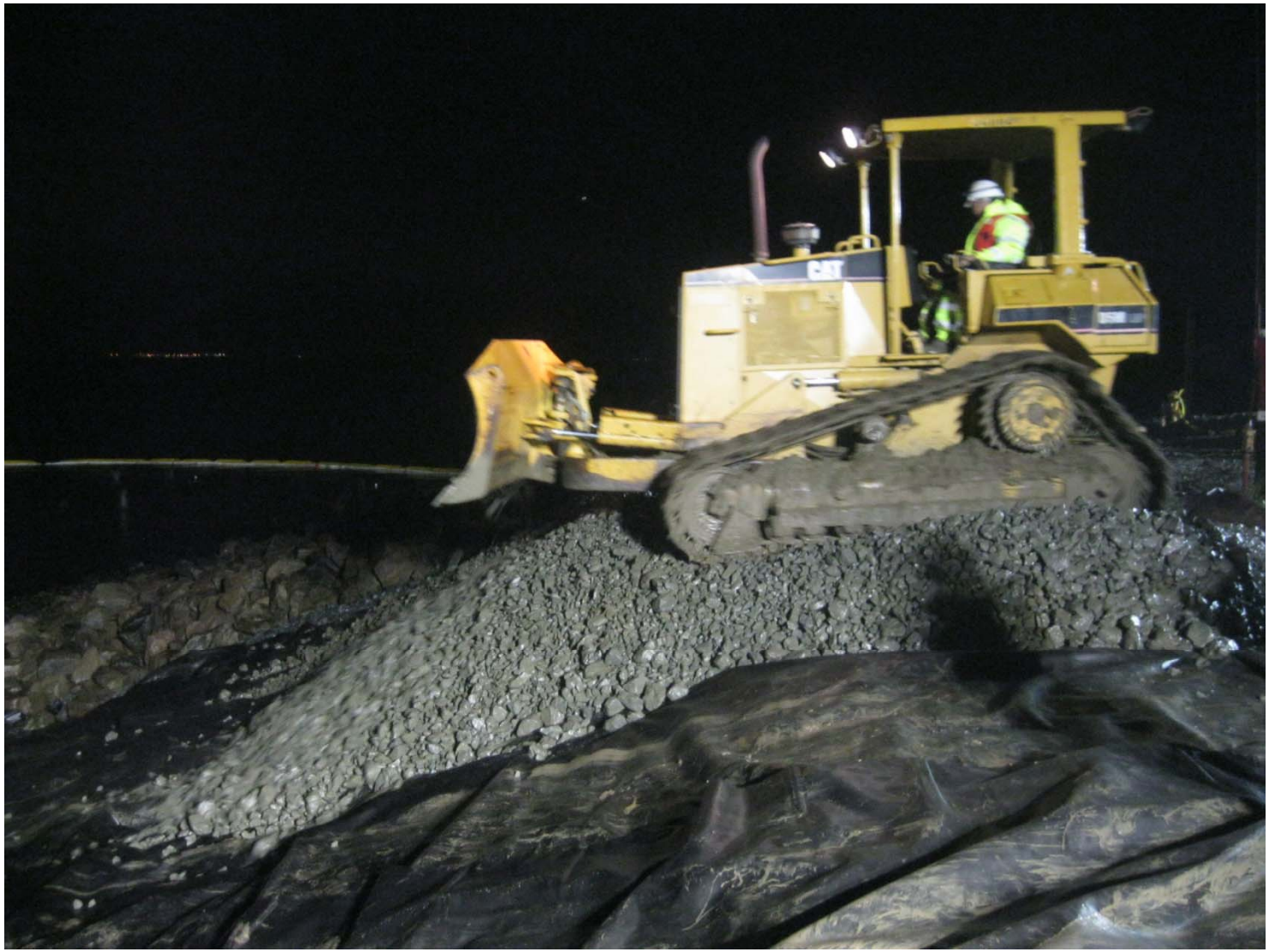
RA Photos
Revetment Slope Excavation

RA Photos
Slope Prepared for Filter Fabric Placement

RA Photos
Filter Fabric Placement at Low Tide



RA Photos
Filter Rock Placement with Low Ground Pressure Bulldozer



RA Photos
Grade Checking Filter Rock Thickness

RA Photos
Filter Rock Placement Complete

RA Photos
Rip Rap Placement with Excavator

RA Photos
Completed Revetment Section